CLAIMS

What is claimed is:

1. A therapeutic method for a human, comprising: decreasing the systemic vascular resistance by having for a long-term period an implantable arteriovenous shunt device between an artery and vein of said human, said shunt device having a blood flow rate through said shunt device of at least 5 ml/min after said implantation.

2. The method as set forth in claim 1, wherein said artery is an aorta and said vein is an inferior vena cava.

3. The method as set forth in claim 1, wherein said method is a respiratory or cardio-respiratory therapy.

4. The method as set forth in claim 3, wherein said respiratory or said cardio-respiratory therapy is based on an increase of the partial pressure of O_2 dissolved in the arterial blood plasma, an increase of the hemoglobin O_2 saturation in arterial or venous blood, or an increase of the O_2 concentration in arterial or venous blood.

5. The method as set forth in claim 1, wherein said method is a cardiac therapy.

6. The method as set forth in claim 5, wherein said cardiac therapy is based on an increase of the cardiac output.

7. The method as set forth in claim 1, wherein said method is a circulatory therapy.

8. The method as set forth in claim 7, wherein said circulatory therapy is based on a decrease of the pulmonary arterial blood pressure, a decrease of the systemic arterial blood pressure, a decrease of the systemic systolic pressure or a decrease of the systemic diastolic pressure.

9. The method as set forth in claim 1, further comprising controlling said blood flow rate through said shunt device at a blood flow rate level or range.

10. The method as set forth in claim 9, wherein said controlling further comprises sensing and using physiological parameters, wherein said physiological parameters are blood pressure, heart rate, cardiac output, paO_2, O_2 saturation, O_2 saturation, mean systemic arterial pressure or mean systemic venous pressure.

11. The method as set forth in claim 1, further comprising self-adjusting said blood flow rate through said shunt at a predetermined blood flow rate level or range by having said shunt device capable of self-adjusting its cross sectional area or its length, or both, as a function of the pressure difference across said shunt device.

12. The method as set forth in claim 1, wherein said shunt device is implantable via an open surgical procedure, a minimally invasive surgical procedure, or an intravascular procedure.

13. An apparatus for therapy in a human, comprising: a long-term implantable arteriovenous shunt device between an artery and a vein in said human to decrease the systemic vascular resistance, wherein the cross sectional area and the length of the lumen of said shunt device are selected to having a blood flow rate through said shunt device of at least 5 ml/min after said implantation.

14. The apparatus as set forth in claim 13, wherein said artery is an aorta and said vein is an inferior vena cava.

15. The apparatus as set forth in claim 13, wherein said cross sectional area is in the range of about 19 mm^2 to about 750 mm^2

16. The apparatus as set forth in claim 13, wherein said length is in the range of about 2.5 mm to about 15 mm.

17. The apparatus as set forth in claim 13, wherein the radius is in the range of about 2.5 mm to about 15 mm.

18. The apparatus as set forth in claim 13, further comprising a control means to control said blood flow rate through said shunt at a blood flow rate level or range.

19. The apparatus as set forth in claim 18, wherein said control means comprises one or more sensors to sense said blood flow rate or the pressure difference across said shunt device.

20. The apparatus as set forth in claim 18, wherein said control means comprises one or more flow control elements.

21. The apparatus as set forth in claim 13, wherein said shunt device is a self-adjustable shunt device to self-adjust its cross sectional area or its length, or both, as a function of the pressure difference across said shunt device to automatically control said blood flow rate through said shunt at a predetermined blood flow rate level or range.

22. The apparatus as set forth in claim 13, wherein the inner wall of said shunt device has a coating to prevent clot formation or atheroma formation.